

**ABSTRACT**

A method for use in operating a signal attenuation measurement device used to obtain a physiological parameter of a patient and an apparatus for use in determining at least one physiological parameter relating to a patient from at least first and second  
5 signals transmitted to a patient tissue site and attenuated thereby are provided. In accordance with the method and apparatus of the present invention, the first and second signals are multiplexed using frequency orthogonal code division multiplexed excitation waveforms. This allows for both relatively good source separation of the signals and whitening of external noise.